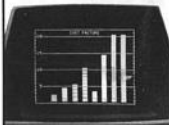


Amortization Chart



Bar Graphs and Statistics



Black Jack



Teaching Trigonometry



Information Storage



Backgammon



Moon Landing and Scientific Calculations



Inventory Control



**commodore**  
No. 1 in Microcomputers

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# The PET™

Personal Computer



**commodore**

## software and documentation

The inclusion of 8K of extended BASIC in ROM means there are a large number of programs that can readily be used with the PET. Commodore has its own Master Library which is being added to on a monthly basis. These are issued on cassettes and include Scientific, Financial, Business, Educational and Games packages. Personalised programming is not undertaken by Commodore but is available from many Authorised Dealers, software houses and freelance programmers. Commodore's BASIC is comprehensive and easily learnt for writing one's own programs. Over 200 programs are now available from Commodore and other software suppliers for the PET. Most popular program titles for PET include: Stock Control, Statistics, Payroll, Strathclyde Basic Course, Chess, Lunar Landing, Education packs. An introductory and a Users



Handbook are included as standard documentation. Also available are the highly praised hardware and Programming manuals on our own MOS Technology 6500 microprocessor — used at the heart of both the PET computer and our KIM microprocessor system. These will aid the more sophisticated users. Highly recommended is "The Strathclyde Basic Course" — an extremely comprehensive work book and instructional tapes

to teach newcomers Basic programming.

The U.K. PET Users Club also produces regular newsletters covering such topics as applications, software hints and program information. The rapid acceptance and acclaim of PET by professionals means it has become an industry standard ensuring even further software availability from many external sources.

## some application areas for PET

### For the Commercial User

The Commodore PET offers the commercial user for the first time a really cost effective business computer for use in:

Statistics,  
Stock Control,  
Payroll,  
Invoicing, etc.

### For the Scientist and the Laboratory

The PET has a comprehensive set of scientific functions making it a far superior tool to the best

programmable calculators. The IEEE-488 interface (HP-IB) is directly compatible with hundreds of laboratory instruments such as DVM's, synthesizers, auto analysers, data-loggers, etc. The PET also has a general purpose 8 bit plus 2 control bit I/O port for general interfacing. This last feature makes the PET an ideal industrial and commercial controller. Direct access to machine code allows special I/O routines to be easily written.

### For the Educational World

The PET's applications in the educational field are numerous. The extensive BASIC language and the file by name cassette program storage facilities make the PET an ideal tool for teaching

computer programming. Programs can be written to "tutor" the user (pupil) in almost any discipline, including BASIC itself. And, of course, the PET can be used to take care of school records, exam results, attendance figures, etc.

### In the Home

As well as being used for all the previous applications the PET computer is an extremely creative and instructive learning medium of the future for young and old alike. There are also large numbers of entertainment programs available including chess and space games.

*Commodore's policy is one of continuous improvement and the right to change models, specifications and prices at anytime without notice is reserved.*

## commodore basic

The fastest full floating-point BASIC implemented on a micro-computer. Allows communication directly from BASIC to IEEE-488 standard devices, cassettes, display, and keyboard built into PET. Accurately built-in clock is settable and readable from BASIC in decimal or string value. Full command set, including:

### Basic Arithmetic Statements

+ - \* / < > =

### Standard Dartmouth BASIC Statements

|      |      |       |      |     |
|------|------|-------|------|-----|
| LET  | READ | PRINT | DATA | IF  |
| THEN | FOR  | NEXT  | DIM  | END |
| GOTO |      |       |      |     |

### Extended BASIC Statements

|             |      |              |       |     |
|-------------|------|--------------|-------|-----|
| RESTORE     | REM  | GET          | GOSUB | DEF |
| RETURN      | STOP | STEP         | INPUT | FN  |
| ON ... GOTO |      | ON ... GOSUB |       |     |

### Scientific Functions

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| SGN | INT | ABS | SQR | RND | SIN |
| COS | TAN | ATN | LOG | EXP | π   |

### Logical Operators

AND OR NOT

### Operation Commands

RUN NEW CLR LIST CONT FRE

### Formatting Functions

TAB POS SPC

### Machine Level Statements

PEEK POKE

Allow the user to examine and store at specific memory locations.

### USR SYS

Link BASIC to machine language subroutines with parameter passing or developmental subsystems.

### WAIT

Monitors status of a memory location such as an I/O port until specified bits are set.

The screen writing rate is 1000 characters per second.

### String Functions

LEFT\$ RIGHT\$ MID\$

Returns substrings (of specified length and

position) of string acted upon.

### CHRS ASC

CHRS returns a character, given a numeric code. ASC returns a numeric code corresponding to a character.

### LEN

Returns the length of a string.

### VAL STR\$

Convert decimal values to numeric strings and vice-versa.

### Extended I/O Statements

OPEN CLOSE

Control association of a logical file number to a physical device, and optionally, a file on the device.

SAVE LOAD VERIFY

Store and retrieve a program, with optional file name, on a physical device. Load allows for program overlay, VERIFY compares contents of memory to stored program.

PRINT# INPUT# GET#

Allow communication with logical device numbers other than keyboard or screen. GET# inputs one character.

### CMD

Permits communication with multiple devices simultaneously.

### Example of I/O Operations

#### Tape-to-tape file copy

```
10 OPEN 5:1,0,"OLD FILE"
15 POKE 243,58:POKE 244,3
20 OPEN 6,2,1,"NEW FILE"
30 INPUT #5,AS
40 IF (ST) AND 64 GO TO 70
50 PRINT #6,AS
60 GO TO 30
70 CLOSE 5
80 CLOSE 6
```

Program locates "OLD FILE" on tape #1, writes file header for "NEW FILE" on tape #2, then copies tape #1 to #2 until it encounters an EOF on #1, and then writes an EOF on #2.

### Variables

#### TYPES:

|                                                                                            |             |             |
|--------------------------------------------------------------------------------------------|-------------|-------------|
| Real                                                                                       | Integer (%) | String (\$) |
| Variable names are uniquely given as a letter or a letter followed by a letter or a digit. |             |             |

### Special variables

|    |     |                                 |
|----|-----|---------------------------------|
| TI | TIS | Time of day                     |
| ST |     | Status word for I/O operations. |

# The Self Contained PETS

The self contained PET models 2001-4 and 8 come complete with TV screen, keyboard and built-in cassette deck as well as the computer circuitry. They are simply plugged into any 13 amp mains and no special knowledge is needed for running standard programs — over 200 of which are available on cassettes (please see separate software bulletins)



## Specifications:

**Dimensions:** 16 1/2" wide by 18 1/2" deep, 14" overall height.

**Weight:** 44lbs

### MEMORY

**Random Access Memory** 4K or 8K as per model number  
Expandable to 32K bytes

**Read Only Memory** (operating system resident in the computer): 13K bytes  
8K BASIC Interpreter  
4K — Operating system  
1K — Diagnostic routine

### VIDEO DISPLAY UNIT

9" enclosed, black and white, high-resolution CRT  
1000 character display, arranged 40 columns by 25 lines  
8 x 8 dot matrix for characters and continuous graphics  
Automatic scrolling from bottom of screen  
Winking cursor with full motion control  
Reverse field on all characters (white on black or black on white)

64 standard ASCII characters; 64 graphic characters. Lower case letters are available by use of a POKE command.

### KEYBOARD

9 1/2" wide x 3" deep; 73 keys  
All 64 ASCII characters available without shift. Calculator style numeric key pad  
All 64 graphic and reverse field characters accessible from keyboard (with shift)

**Screen Control:** Clear and erase  
**Editing:** Character insertion and deletion

### CASSETTE STORAGE

Fast Commodore designed redundant-recording scheme, assuring reliable data recovery  
Cassette drive modified by Commodore for much higher reliability of recording and record retention  
High noise immunity, error detection, and correction  
Uses standard audio cassette tapes  
Tape files, named

### OPERATING SYSTEM

Machine language accessibility  
File management in operating system

Cursor control, reverse field, and graphics under simple BASIC control  
Cassette file management from BASIC  
Pseudo random number Generator

### INPUT/OUTPUT

All other I/O supported through IEEE-488 instrument interface which allows for multiple intelligent peripherals  
All I/O automatically managed by operating system software  
Single character I/O with GET command  
Easy screen line-edit capability  
Flexible I/O structure allows for BASIC expansion with intelligent peripherals

### BASIC INTERPRETER

Expanded 8K BASIC; 20% faster than most other 8K BASICS  
Upward expansion from current popular BASIC language  
Strings, integers and multiple dimension arrays  
10 significant digits; floating point numbers  
Direct memory access through PEEK and POKE commands

# The Big Memory PETS

The Big Memory PETS contain the same main features as for the 2001-4 and 2001-8 models except that they incorporate a full typewriter size keyboard and have larger internal memory of 16K and 32K bytes RAM respectively. To accommodate the larger keyboard there is no built in cassette deck and this has to be purchased as a separate item if required.



## External Cassette

The C2N Cassette is an economical data storage and retrieval device for use with the PET™ as a single unit for loading and saving programs. Twin cassettes enable file handling and updating. It uses standard audio cassette tapes available in stores everywhere. The C2N features

a Double Save technique at different audio frequencies ensuring error correction. The verify command feature provides correct saving of programs. The C2N Cassette is the perfect low cost device for a variety of programming functions.

## Specifications:

Fast Commodore designed redundant-recording scheme, assuring reliable data recovery.  
Cassette drive modified by Commodore for much higher reliability of recording and record retention;  
High noise immunity, error detection, and correction;  
Tape files, named.

### Commands:

|        |                          |
|--------|--------------------------|
| LOAD   | ie. LOAD "NAME", 2       |
| SAVE   | ie. SAVE "NAME", 1, 1    |
| VERIFY | ie. VERIFY "NAME", 2     |
| OPEN   | ie. OPEN 1, 2, 0, "NAME" |
| CLOSE  | ie. CLOSE 1              |



## Connections to the Outside world

Available at the back and sides of the PET 2001 computer are four edge card connectors. These are to the built-in IEEE-488 interface (HP-IB), the 8 bit user port with two extra handshake lines, the second cassette interface and the memory expansion connection.

# Professional Printers

## 2022 PRINTER

This Tractor Feed model is a high specification printer that can print onto paper (multiple copies) all the PET characters — letters (upper and lower case), numbers and graphics available in the PET. The tractor feed capability has the advantage of accepting mailing labels, using standard preprinted forms (customized), cheque printing for salaries, payables, etc. Again, the only connections required are an A/C lead and PET connecting leads. The PET is programmable, allowing the printer to format print for: width, decimal position, leading and trailing zeros, left margin justified, lines per page, etc. It accepts 8 1/2" paper giving up to four copies. Programmable line spacing.



## Specifications:

### Microcomputer System Devices

6504 Microprocessor  
6522 I/O, interval timer (2)  
6114 1K x 4 RAM (2)  
6332 4K x 8 ROM

### Printer Mechanism

Tractor feed  
Epson DH-70 print head  
Dot matrix — 7 x 6 — 80 columns per line  
Impact print — original plus 3 copies  
Print rate is 75 LPM (93 CPS)  
Programmable line spacing  
Forms: 8.5" plus 5" x 2 (sprocket margins)  
Pin to pin distance 5" Longitudinally  
9.0" Laterally  
5/32" Diameter

### Packaging

18 gauge all steel cabinet  
Dimensions: width — 17", depth — 18", height — 6"  
Forms enter from rear or bottom of cabinet.

### Data Interface

IEEE-488  
Standard 24-pin stacking connector  
Device #4-7 by jumper option  
Listener only  
Recognizes secondary addressing

### Character Set

Upper case ASCII  
Lower case ASCII  
PET graphics

### Control Characters

- Enhance printing (doubles size)
- Enable automatic line count and paging
- Page eject
- Print reverse field
- Overprint a line
- Switch to graphics character set
- Switch to lower case character set
- Print programmable character

### IEEE Secondary Address Commands

- Print data exactly as received
- Accept characters as a format
- Edit data to format
- Alter number of lines per page
- Enable diagnostic messages to print
- Accept data for programmable character

### Data Formatting Capability

- Field width and decimal position specified
- Leading or trailing sign
- Fixed or floating dollar sign
- Forced leading zeros
- Literal characters always printed
- Alpha fields left justified

### Diagnostic Messages

- Can be turned on when desired
- Print on paper
- Describe problems with format and data

## 2023 Printer

This is a friction feed version of the above printer.  
(Please note that the 2020 Printer has been cancelled)

# Dual Drive Floppy Disk

The Dual Drive Floppy Disk is the latest in Disk technology with extremely large storage capability and excellent file management. As the new Commodore disk is an "Intelligent" peripheral, it uses none of the RAM (user) memory of the PET.

The Floppy Disk operating system used with the PET computer enables a program to read or write data in the background while simultaneously transferring data over the IEEE to the PET. The Floppy Disk is a reliable low cost unit, and is convenient for high speed data transfer. Due to the latest technological advances incorporated in this disk, a total of 360K bytes are available in the two standard 5 1/4" disks, without the problems of double tracking or double density. This is achieved by the use of two microprocessors and fifteen memory I.C.s built into the disk unit. Only two connections are necessary — an A/C lead and PET interface lead.



## Specifications:

### Microcomputer system devices

Controller  
6504 microprocessor  
6530 I/O, RAM, and 1K ROM software  
6316 2K ROM for encoding & decoding disk data  
6522 I/O and interval timers  
File interface  
6502 microprocessor  
6532 RAM, I/O, interval timers  
6332 4K ROM each (total 8K disk operating system)  
Shared RAM  
(8) 6114 1K x 4 bit static RAM (total 4K bytes)

### Disk drives

(2) Shugart Associates SA390 drives  
Standard minifloppy (5 1/4" disk)  
activity LED's light when a file is open on that drive

### Packaging

18 gauge all steel cabinet  
Dimensions: width — 15", depth — 14 1/2", height — 6 1/2"  
Cover hinges from base for servicing

### Diskette organization

Formatting is by the drive itself — any mini-floppy diskette may be used  
35 concentric tracks  
constant density recording on each track  
varying number of sectors per track —  
innermost 17 outermost 21  
176640 bytes on a single side  
Track 16 used for directory  
171520 bytes for user storage  
Soft-sectored  
Diskettes for dual side recording may be used

### Data Interface

IEEE-488  
Standard 24-pin stacking connector  
Device #8-15 by jumper option  
full listener — talker  
recognizes secondary addressing

### Floppy Disk Commands (summary)

| LOAD          | i.e. LOAD "0: BASIC BASIC",<br>B                                                  |
|---------------|-----------------------------------------------------------------------------------|
| SAVE          | i.e. SAVE "0: BASIC BASIC",<br>B                                                  |
| OPEN COMMAND  | i.e. OPEN 1, 8, 15                                                                |
| CHANNEL       |                                                                                   |
| VERIFY        | i.e. PRINT #1, "VER 0"                                                            |
| FORMAT        | i.e. PRINT #1, "NEW 0:<br>NAME"                                                   |
| OPEN A WRITE  | i.e. OPEN 14, 8, 5 "0: FILE A,<br>SEO, WRITE"                                     |
| CLOSE CHANNEL | i.e. CLOSE 14                                                                     |
| PATTERN       | i.e. "NM" matches "NM";                                                           |
| MATCHING      | "NUM"; "NAME"; "NUMBER"<br>i.e. "N*" matches all file names<br>beginning with "N" |

Pattern matching with file names may be used only when:  
Loading directory (\$)   
Scratching files   
Opening read channels   
Loading programs

Default drive #1's may be used in most cases.

Using a " " without a drive # indicates a default to the previously determined drive #. A file name with no drive # or " " indicates that the file is to be looked up on both drives, beginning with the previously determined drive #. A " " must separate commands from file names as described above.

Commands may be abbreviated to any format that retains the 1st char